Job Loss Analysis

Control No: 2000155 **Status:** Closed **Original Date:**

Organization: Global Manufacturing
JLA Type: Global Manufacturing – Pascagoula Refinery
Work Type: Acid Washing Equipment to Remove Foulants
Work Activity: Equipment Cleaning

Personal Protective Equipment (PPE)	Selected	Comments

Reviewers

Reviewer Name	Position	Date Approved
Kenny Ready	Process Engineering Mgr.	11/11/2010

Development Team

Development Team Member Name	Primary Contact	Position
Dole, Stephen J. (SDKG)	Y	Sulfur / Amine PE
James Mansingh	N	Chemical Cleaning Specialist

Job Steps

No	Job Steps	Potential Hazard	Critical Actions
1	Determine if Acid Wash is Needed and Applicable	1. Unnecessary work and use of resources 2. Unnecessary personnel and business risk	1a. Perform appropriate calculations and sampling to determine if acid wash is prudent. Potential calculations are U-value, fouling factor, plot dP versus vapor rate. Seek expert advice around what calculations fit your system. In addition review Acid Wash BP for additional guidelines. 1b. Catch samples of inlet and outlet streams around equipment for material balance or if possible obtain a sample of the contaminant. If possible fouling contaminant can be obtained, test different acids / solutions on contaminant. Talk to cleaning specialist or SME for further questions concerning what tests to run on the sample 2. Discuss the feasibility of acid

			washing specified equipment with Materials Engineering
2	Find a Contractor(s) to Perform Work	1. Legal implications from not using proper resources to obtain contract work. 2. Personnel and business risk.	1a. Work with Procurement to determine what chemical cleaning contractor to use. (Note: Usually Frac and Poly tanks are needed and these tanks are usually supplied by a different company. Ensure that this vendor is involved in the wash procedure development.) 1b. Discuss potential contractors with chemical cleaning specialist in order to determine if there is a certain contractor that is preferred for your specific unit operation. 1c. Get a budgetary estimate of acid wash and talk with operating area management about cost vs. benefits. 2a. Work with Procurement to determine if the selected contractor has the appropriate safety credentials to work for Chevron. 2b. Before contractor submits wash procedure, make sure a copy of our BP acid wash guidelines are sent to the contractor for review. 2c. Go over sampling and documentation needed during wash with contractors. 2d. Hold an HSE meeting or group LPSA meeting to go over the acid wash procedure. In particular, ensure that representatives from Environmental, Safety, and Metallurgist are involved in the HSE discussion.
3	Plan Work and Review Procedures	1. Confusion, costly setbacks and equipment reliability 2. Safety of surrounding work areas and groups	1a. Hold a meeting with operation area to discuss timing and logistics around the acid wash. 1b. Be sure to discuss Frac and/or Poly tank location, Berms around all Frac and Poly tanks and onsite chemical storage, dedicated operator to follow job, waste disposal, KR-431 and / or MOC to add new chemicals to MSDS database, sampling wash water, time of acid wash stream to stream, if equipment needs to float on relief during wash. 1c. Go over procedure with chemical cleaning specialist, experienced operator, and SME 1d. Get Environmental group involved to evaluate environmental risk 1e. Get DE involved because acid wash may require temporary connections or spools to be

			fabricated. 1f. Talk to chemical cleaning specialist on what to look for during cleaning that could indicate potential equipment damage (i.e. ferrous iron percent, high temp, etc). 2. Discuss mitigation efforts around worst case scenario(s) (I.e. acid spills, H2S exposure, etc).
4	Execute Work	1. There is the potential to start the acid wash without everyone being on the same page. (equipment reliability / business loss) 2. Not obtaining data needed for post evaluation of the acid wash	1a. Conduct a safety meeting before job starts with contractors and operations. Perform LSPA before job begins. Go over procedure, sample schedule and tests to be performed during wash before wash starts 1b. Make sure all Frac and Poly tanks have berms and vapors are vented through carbon drums or appropriate scrubber device. 1c. Review or have operations review lab data during wash to ensure inhibitor is adequate and temperature of solution is on spec. 2. Go over sample schedule and other tests that need to be performed for post acid wash. Refer to Acid Wash Best Practice for more details.
5	Evaluate and Document Outcome of Wash	1. Improper documentation can lead to confusion on outcome of wash or the planning of a future wash	1a. Have samples taken during acid wash to third party lab to perform a detailed water analysis. This data can be used to determine the mass of foulant removed. 1b. Save all documents on share drive and GDW for future engineers.
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